

# PTFE Backup Rings & Anti-Extrusion Rings

Prevent extrusion and extend seal life in high-pressure static and dynamic applications

## Overview

Backup rings (also called anti-extrusion rings) are washer-like devices installed on the low-pressure side of an O-ring groove. Their primary function is to prevent the elastomer O-ring from extruding into the clearance gap under pressure, which is the leading cause of seal failure in high-pressure systems.

We manufacture PTFE backup rings in spiral-cut, solid (uncut), and contoured styles to suit installation constraints and pressure levels. All sizes are available to match standard AS568 and ISO 3601 O-ring cross-sections, with custom dimensions manufactured on request.

## Types

	Best For
allows the ring to be stretched over a piston or collapsed onto a rod for easy installation without disassembly. Ideal for field service and retrofit applications.	Rod and piston
providing the highest extrusion resistance. Requires the gland to be open for installation. Best for new designs and highest-pressure static seals.	High-pressure static
that balances installation convenience with structural integrity. Easier to install than solid rings while providing better extrusion resistance than spiral cuts.	General industrial

## Materials

Material	Properties	Best For
Standard PTFE	Universal chemical resistance, lowest friction, wide temperature range (-200 C to +260 C)	Chemical processing, food and pharma, cryogenics
Carbon-Filled PTFE	Higher compressive strength, reduced cold flow, improved wear resistance	High-pressure hydraulics, reciprocating dynamic service
Glass-Filled PTFE	Highest compressive strength, excellent thermal conductivity, superior extrusion resistance	Heavy-duty hydraulics, high-pressure static and dynamic

## Sizing

Backup rings are sized by the O-ring cross-section (CS) and groove width they pair with. We supply rings to match all standard AS568 and ISO 3601 cross-sections, including:

## Available Size Ranges

Series	Coverage
AS568	1.78mm, 2.62mm, 3.53mm, 5.33mm, 6.99mm
ISO 3601 / Metric	1.50mm, 2.00mm, 2.50mm, 3.00mm, 4.00mm, 5.00mm, 7.00mm
Custom	Any non-standard CS and ID on request

## FAQ

### Do I need one or two backup rings?

For pressures up to approximately 150 bar (2,175 psi), a single backup ring on the low-pressure side is usually sufficient. For pressures above 150 bar or with large clearances, two backup rings (one on each side of the O-ring) are recommended to prevent extrusion in both directions.

### Can backup rings be used with dynamic seals?

Yes. Backup rings are commonly used in reciprocating hydraulic cylinders and some rotary applications. For dynamic service, spiral-cut or contoured PTFE backup rings are preferred over solid rings to accommodate installation and slight misalignment.

**What is the difference between a backup ring and a wear ring?**

A backup ring prevents O-ring extrusion under pressure and sits in the same groove as the O-ring. A wear ring (or guide ring) is a separate component that prevents metal-to-metal contact and absorbs side loads, but does not prevent O-ring extrusion.

**Do you supply backup rings for specific O-ring sizes?**

Yes. We can match any O-ring size. Provide the O-ring cross-section and the gland bore or rod diameter, and we will confirm the correct backup ring dimensions. Custom sizes are manufactured without mold fees for standard PTFE profiles.

**Which backup ring material should I choose?**

Virgin PTFE is best for chemical and food applications. Glass-filled PTFE offers the best balance of extrusion resistance and cost for general hydraulics. Bronze-filled PTFE is the choice for extreme pressures and heavy-duty equipment.